

July 29, 1924.

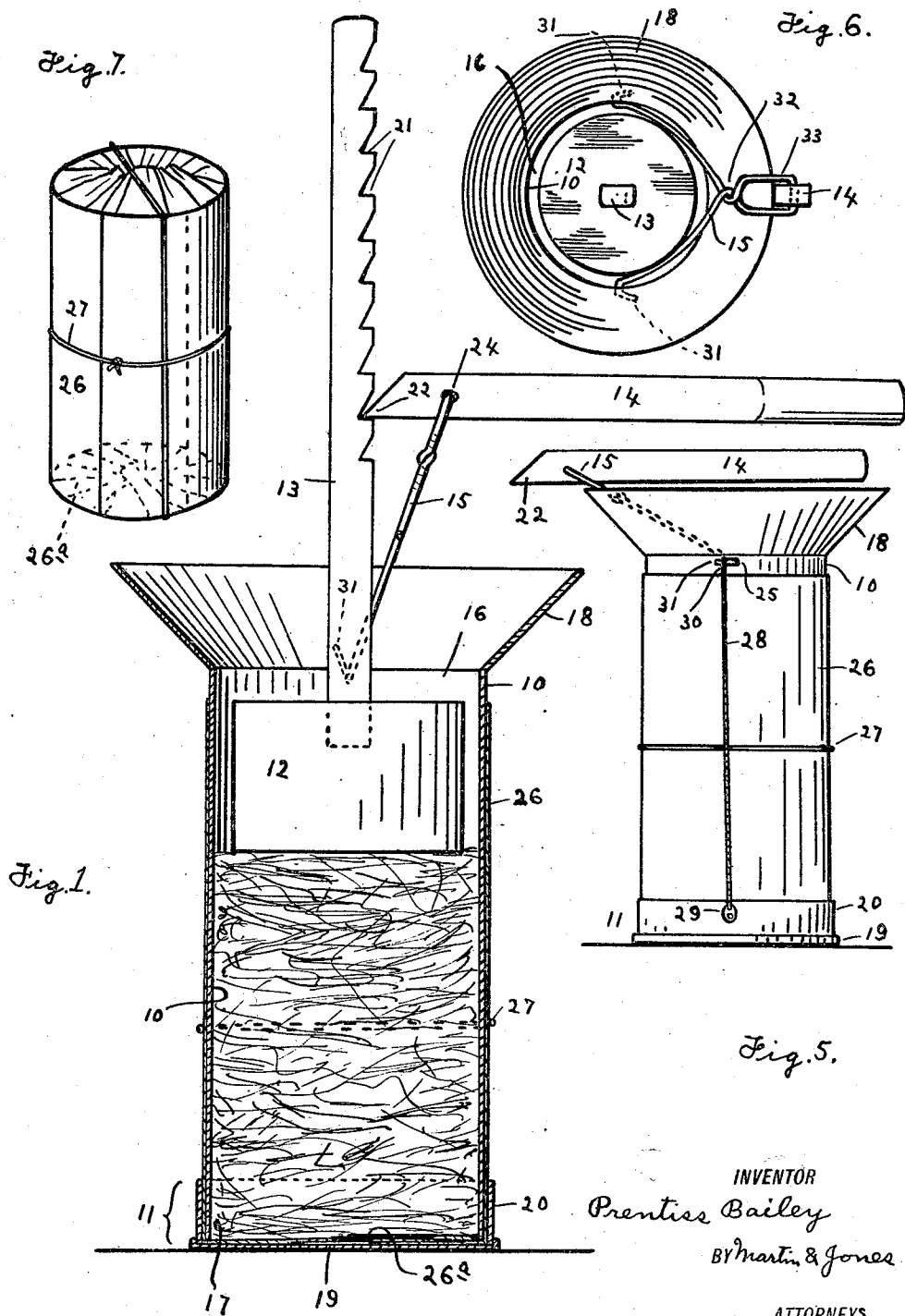
P. BAILEY

1,503,183

BALER

Filed Nov. 14, 1918

2 Sheets-Sheet 1



INVENTOR
Prentiss Bailey
BY Martin & Jones
ATTORNEYS

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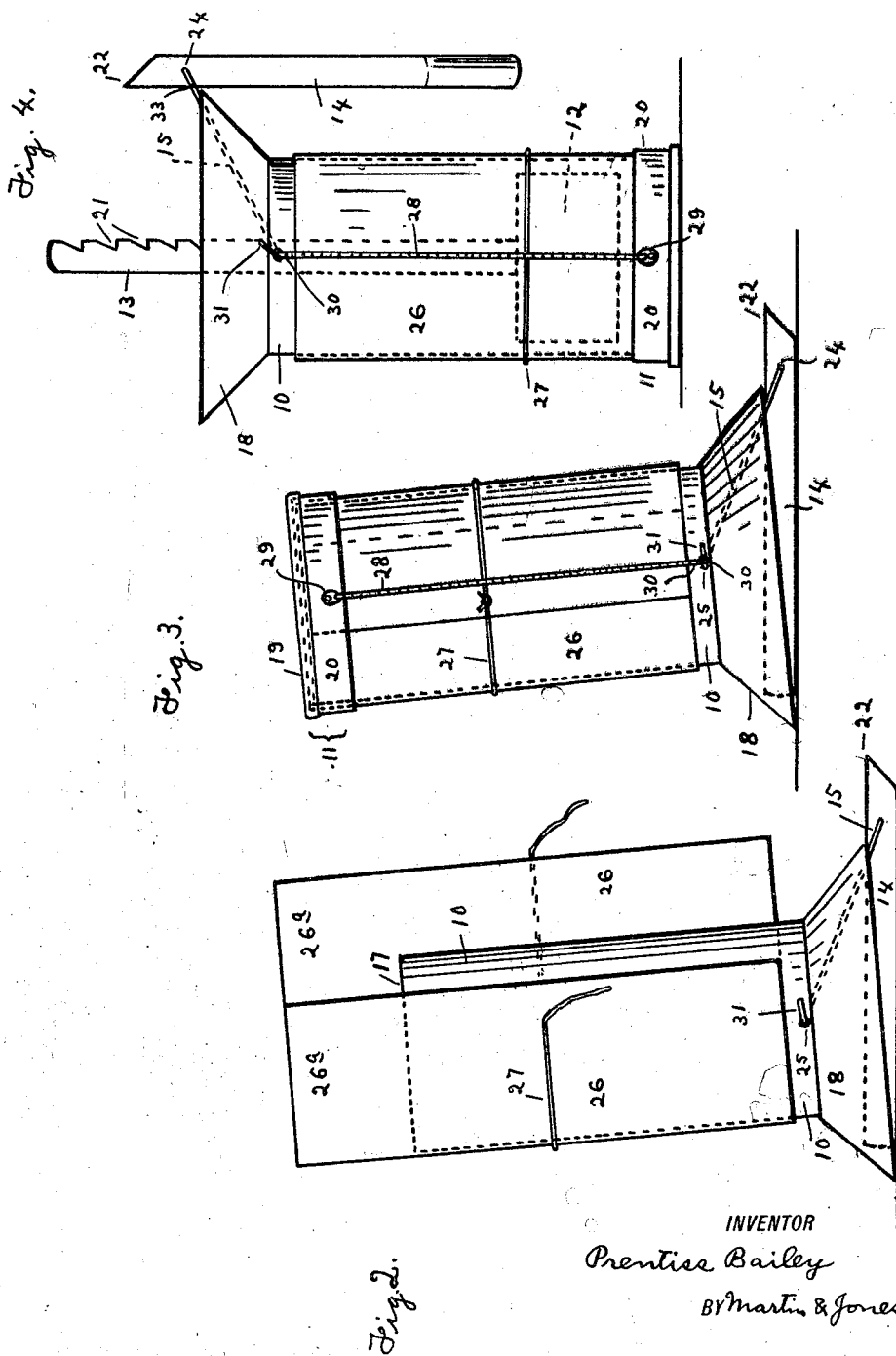
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INVENTOR

Prentiss Bailey

BY Martin & Jones

ATTORNEYS

UNITED STATES PATENT OFFICE.

PRENTISS BAILEY, OF NEW HARTFORD, NEW YORK.

BALER.

Application filed November 14, 1918. Serial No. 262,451.

To all whom it may concern:

Be it known that I, PRENTISS BAILEY, a citizen of the United States, and a resident of New Hartford, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Balers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the reference numerals marked thereon, which form part of this specification.

My present invention relates to baling devices, of a form particularly adapted for baling paper and other waste material in relatively small quantities.

The purpose of my invention is to provide a baling device of improved construction and which is simple, efficient and particularly adapted for use in residences or stores.

A further object is to provide an article of the class described of such form, construction and operation that the use of special baling wrappers and tying members is dispensed with and an ordinary piece of wrapping paper or newspaper may be utilized to form the wrapper of the bale and a string used for the tying means about the bale.

A still further object of the invention is to provide novel and improved means for forming the bale within a wrapper of paper or the like without straining or breaking the said wrapper and for separating the baled material and its closely enclosing wrapper bodily from the receptacle.

A still further purpose is to provide a baling device of parts so formed, combined and co-operating that a strong receptacle is provided to form and compress the material to be baled, that efficient and conveniently operated means are at hand to force the compressed material from the receptacle when desired and that the parts may be readily attached or detached as required for the successive operations of placing and holding the wrapper in position, forming the mass of compressed material therewithin and removing the said material and its wrapper together from the baler.

Yet another purpose is to provide in an article of the class described, means for removably attaching the bottom closure and

the receptacle of such an arrangement that the parts may be readily attached or detached when the parts of the device are in position when such attachment or removal is proper, but cannot be detached when the parts of the device are in the position they normally occupy when the material is being placed into and compressed within the receptacle.

Further purposes and objects of my invention will appear from the description and claims herein.

Fig. 1 is a vertical sectional view of a baling device embodying my invention with the parts in the relative position they occupy when a bale has been formed within the receptacle and is about to be removed therefrom.

Fig. 2 is a side elevation on a reduced scale of the receptacle turned upside down with the bale wrapper in process of being placed about the receptacle.

Fig. 3 is a side elevation on a similar scale with the wrapper fully placed in position and the bottom closure placed on to the still reversed receptacle and removably attached thereto.

Fig. 4 is a side elevation of the device showing the parts in the relative position they occupy when it is ready to receive the material and a bale has been partly formed therein.

Fig. 5 is a side elevation on a similar scale with the link or bail moved over into such position that the chains secured to the closure may be detached from the ends of the link.

Fig. 6 is a plan view of the device with the parts in the position shown in Fig. 4.

Fig. 7 is a perspective view of a completed bale as formed by my device.

Referring to the drawing in a more particular description, it will be seen that the baling device comprises a receptacle 10, a bottom closure therefor 11, a separate weight 12 with handle rod 13 upstanding therefrom and a lever 14 operatively connected to the receptacle by a link or bail 15.

The receptacle is formed of sufficiently rigid material such as sheet metal or fiber and is made tubular in shape so that opposite portions of its outer side will be substantially parallel and so that opposite portions of its inner side will be substantially parallel and so also that its inner surface will be substantially parallel with its outer

surface. The body of the receptacle is free from interruptions or projections thereon both internally and externally and with an opening 16 at its top to receive the loose material as paper, rags or the like and with a lower opening 17 of the full size of the receptacle so that the compressed material may be removed downwardly therethrough. I have shown the receptacle as being made in the form of a hollow cylinder as that is a convenient form for use and economical form for manufacture, but it will be obvious that the receptacle may be made in other shapes. Preferably also the receptacle is provided with an upwardly and outwardly extending flange 18 forming a hopper or funnel in order to more conveniently receive the paper or the like from a waste paper basket or other container. The funnel-shaped top also assists when the material is being compressed in the device.

The bottom closure 11 is an attachable and detachable cap-like member consisting of a bottom proper 19 of suitable material as sheet metal, fiber or the like with an upwardly extending flange 20 at its outer edge. This closure is of a shape to loosely fit over the bottom of the receptacle with the flange 20 outside of and slightly spaced from said receptacle so that said closure may be readily placed in position upon the receptacle after the bale wrapper of paper or the like is placed about the receptacle and turned in across the bottom opening of the receptacle as will be more fully hereinafter described.

The separate weight 12 is preferably the same shape in cross area as the receptacle, but a little smaller than the receptacle. The weight may conveniently and economically be formed of a block of wood of the required thickness to give desired weight as shown in the drawings or may be formed of metal in which case, however, the weight would not be as thick relatively as shown in the drawings.

The handle 13 is provided on one side with a series of upwardly directed teeth 21 adapted to co-operate with the short and pointed end 22 of the lever 14. This lever is pivotally mounted as at 24 upon the middle of the bail-like link 15. The lower ends of the link are pivotally mounted upon opposite sides of the receptacle so that the link and lever may be moved into operative position to have the lever engage the handle rod 13 to press the baled material downward through the receptacle or may be swung to one side or the other as required for filling the receptacle or placing the wrapper about the receptacle.

A convenient and the preferred way of pivotally mounting the link 15 upon the receptacle is to have the opposite ends of the link project through oppositely disposed holes 25 in the receptacle near its top, the

body of the link being within the hopper of the receptacle with said ends of the link projecting outwardly through said holes. The ends 31 of the link outside the receptacle are turned back in the general direction of the body of the link but at a slight angle thereto for a purpose hereinafter mentioned.

The different operations of forming a wrapped bale from loose paper or other loose material by means of my device is as follows:

First: About the outside of the empty receptacle 10 is placed the bale wrapper 26 which is a sheet of paper or other suitable material of sufficient size to surround the receptacle with a considerable over-lap and to extend from just below the top of the receptacle 10 to a line some distance below the bottom edge of the receptacle. A string or other tying member 27 is then placed around the outside of the wrapper and tied so as to keep the wrapper securely but not too tightly in place around the receptacle. The portion 26^a of the wrapper extending below the bottom of the receptacle is then turned in at right angles across the open bottom of the receptacle 10. The bottom closure is then placed in position on the bottom of the receptacle and outside of the wrapper and removably attached to the receptacle by proper means hereinafter described. The most convenient way of performing this operation of placing the wrapper about the receptacle and attaching the closure thereto is illustrated in Figs. 2 and 3. This includes turning the receptacle upside down upon the floor with the attached parts of the receptacle, namely the link and lever in position shown in Figs. 2 and 3. The wrapper 26 is then placed about the receptacle and secured in such position by string 27 about midway the length of the wrapper. The projecting portion 26^a of the wrapper is then turned inwardly across the open and now upturned bottom of the receptacle, the projecting portion of the wrapper being preferably sufficient in extent to close the said opening. The bottom closure 11 is then placed over the bottom of the receptacle with the flange 20 fitting the wrapper closely enough to assist in holding the wrapper in place and with the bottom of the closure forming a rigid closure immediately outside the flexible closure formed by the inturned portion of the wrapper.

Preferably positive means will be provided to removably fasten the bottom closure to the receptacle. The preferred fastening means for this purpose include two cords or chains 28 permanently attached as at 29 to oppositely disposed points upon the flange 20 of the bottom closure and of a length sufficient to have the ring or link 30 at the other end reach to the outwardly pro-

jecting end 31 of the link 15 upon its side of the receptacle. As herebefore mentioned the said ends of the link 15 are at an angle to the body of said link and this angle is such that when the link is turned to the position shown in Figs. 3 and 5 the ends 31 are substantially horizontal with the top of the receptacle so that the loop at the upper end of said cord or chain may be readily slipped over its co-operating projecting end 31. The receptacle with its surrounding wrapper and attached bottom closure is now turned right side up and the link turned over to the opposite side of the receptacle with the lever hanging downward therefrom resulting in the parts being in the position shown in Fig. 4 and leaving the receptacle ready to receive waste paper or other waste loose material as it accumulates.

The object in turning the receptacle bottom-side up while applying the wrapper and cap thereto is that this course leaves the operator free to use both hands in applying the paper wrapper and the closure successively to the receptacle and is the most convenient position for the wrapper to be applied so as to project beyond the bottom of the receptacle. With the receptacle thus turned up-side down the bottom closure 11 when placed in position on the receptacle remains there even though quite loose until said closure is attached by means of the chains 28. It is obvious that if thought more convenient any operator can apply the wrapper to the receptacle while the receptacle is in any other position and particularly the receptacle can be placed down into the upright bottom closure while said closure is in normal position and upon the floor and the receptacle in normal upright position.

The turning of the link 15 from the position shown in Figs. 2 and 3 to the position shown in Fig. 4, relative to the receptacle, results in the hook-like ends 31 of the link pointing upward somewhat and so locking the upper ends of the chains 28 from being accidentally displaced therefrom while the baling device is being filled with waste material.

Second: Assuming the receptacle to be in the position last mentioned, namely as shown in Fig. 4, but still without the handled weight 12 within the receptacle, loose paper or other loose material to be baled is thrown into the receptacle and compressed therein by tamping it down from time to time by means of the weight 12. The upstanding handle rod of the weight affords a convenient handle for manipulating the weight. As the device now described places no strain upon either the bottom or the sides of the wrapper during the process of compression and the bottom closure and receptacle are very strong and securely fas-

tened together it will be seen that the waste material may be very greatly compressed. Preferably the weight 12 will be heavy enough so that the operator will have to do but little more than raise the weight some distance above the paper and let it fall, using the handle as a guide and applying thereto more force if desired on the downward movement. After sufficient loose material has been placed in the device to make it reach when compressed about as high as shown in Fig. 1 the next part of the operation will be performed.

Third: Removing the compressed material from the device and completing the wrapping the bale the handled weight will be either removed entirely temporarily or tipped to one side far enough to allow the link 15 to be turned to the left past the center from the position shown in Fig. 4 to about the position shown in Fig. 5. This movement operates to move the upstanding hook ends 31 of the link to about horizontal position allowing the loops 30 at the upper ends of chains 28 to be readily detached from said hook ends. The link 15 is then swung back to about the position shown in Fig. 1 and the weight 15 returned to position so that its upstanding handle 15 is about in the position shown in Fig. 1. The pointed end 22 of the lever 14 is then brought into engagement with one of the upwardly projecting teeth 21 of the handle 13 and power applied upwardly to the outer or handle end of said lever 14. The relative downward movement of the short end 22 of the lever will be communicated through handle 13 to the weight 12 which will now act as a piston bearing with great pressure against the upper surface of the compressed material and the compressed material within the receptacle will be forced downward relative to the receptacle, resulting in the lower portion of said compressed material going out through the bottom opening of the receptacle and carrying therewith not only the returned portion 26^a of the wrapper, but the wrapper bodily. During this movement the compressed material is moving downwardly through and inside the receptacle and the body or side portion of the wrapper 26 is moving down outside of the receptacle. At the beginning of this movement the bottom closure is moved from its position relative to the receptacle and stays at the bottom of the bale forming for the time a support for the bottom for the bale. As the limit of movement from one stroke of the lever is reached the lever will be disengaged from the tooth 21 theretofore engaged by it and brought into engagement with a convenient tooth higher up upon the handle rod 13 and upon power being again applied in an upper direction to the outer end of said handle the compressed material and wrap-

per will be further separated from the bale. This movement will be continued with the lever 14 engaging successively higher teeth upon the handle 13 until the bale is entirely separated from the receptacle and its attached parts. In practice it will be seen that the convenient way of performing this operation will be to have the baling device standing upright upon the floor when the separating operation begins and successive strokes of the lever 14 will raise the receptacle up from the bale. The weight 12 will remain upon the top of the compressed material until the bale is separated from the receptacle which will in the end be lifted up far enough to remove it from the upstanding handle 13. The handle and weight will then be removed from their position on top of the bale. The portion of the bale wrapper above the top of the baled material will be turned inward against the top of the material forming the top of the bale. As the bale has been gradually removed from the baling device the string or other tying member 27 has remained in position around the bale and now forms the tie member around the bale holding the wrapper to the baled material. After the upper part of the wrapper has been turned down to form the top of the bale one or more strings or other tying members may be placed about the bale longitudinally thereof, it being understood that meanwhile the bale has been separated from the bottom closure.

It will be obvious that the baling device here shown may be made in various sizes, shapes and proportions. A convenient size for residences or small stores, however, is to have the receptacle formed as a cylinder of about nine and one-half inches in diameter and of about nineteen inches in length. With this size of receptacle the ordinary newspaper when spread out to full extent forms a sheet large enough to be the wrapper of the bale and thus obviates having to get any special material for bale wrappers.

Means will be provided to prevent the lever 14 from being rotated too far about on the link 15. The convenient and the preferred form of said means is to give a half twist to the said link a little ways from said lever as at 32 forming an eye 33 on said link adjacent the lever. This arrangement insures the flat side of the pointed end of the lever being downward when the lever is moved to horizontal position as shown in Fig. 1 for the purpose of forcing the compressed material from the receptacle. In other words the lever 14 cannot be swung half way around on link 15 and brought into horizontal position on the opposite side of the handle rod 13. From this arrangement it results also that the lever can hang downward in the position shown in Fig. 4 only on that side of the receptacle. In this way

the hooked ends 31 are kept in upwardly extending and locking position relative to the chains 28 when the bale is being formed in the receptacle.

What I claim as new and desire to secure by Letters Patent is:

1. In a portable hand-operated device for baling waste paper and enclosing the same within a wrapper formed from a plain sheet of paper, the combination of a tubular receptacle open above to receive the loose paper to be baled and open below for the full size of the receptacle to remove the compressed material therethrough; said receptacle being adapted to have a sheet of paper wrapped thereabout with the lower part of the paper turned in across the bottom of the receptacle, a plunger having an upstanding handle for compressing the paper and means connected to said receptacle and adapted to engage said plunger handle and force the baled paper together with its wrapper downwardly free from said receptacle.

2. In a portable hand-operated device for baling waste paper, and enclosing the same within a wrapper formed from a plain sheet of paper, the combination of a tubular receptacle open above to receive the loose paper to be baled and open below for the full size of the receptacle to remove the compressed material therethrough, said receptacle being adapted to have a sheet of paper wrapped thereabout with the lower part of the paper turned in across the bottom of the receptacle, a flanged closure adapted to removably fit the bottom of the receptacle outside the wrapper, a plunger having an upstanding handle for compressing the paper and means connected to said receptacle and adapted to engage said plunger handle and force the baled paper together with its wrapper downwardly free from said receptacle.

3. In a portable hand-operated device for baling waste paper, and enclosing the same within a wrapper formed from a plain sheet of paper, the combination of a tubular receptacle open above to receive the loose paper to be baled and open below for the full size of the receptacle to remove the compressed material therethrough, said receptacle being adapted to have a sheet of paper wrapped thereabout with the lower part of the paper turned in across the bottom of the receptacle, a plunger having an upstanding handle for compressing the paper and means including a link connected to said receptacle and a lever connected to said link and adapted to engage said plunger handle and force the baled paper together with its wrapper downwardly free from said receptacle.

In witness whereof I have affixed my signature, this 29th day of October, 1918.

PRENTISS BAILEY.